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EXAMINER
JOLLEY, KIRSTEN

ART UNIT	PAPER NUMBER
1762	

DATE MAILED: 09/29/2003

13

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/622,942	BASTABLE ET AL.	
	Examiner	Art Unit	
	Kirsten Crockford Jolley	1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 June 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *31-44,48-55 and 58-90* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *31-43,50-55,58-77 and 79-90* is/are rejected.

7)☒ Claim(s) *44,48,49 and 78* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Response to Amendments

1. The amendments to the specification have been entered because the amendments are supported by PCT/GB99/00567 and publication WO 99/44756 and because the instant application is filed under 35 USC 371. Accordingly, the rejection under 35 USC 112, 1st paragraph has been withdrawn.

2. It is noted that the claim language of independent claim 31 was indicated as allowable in the prior Office action, however in searching newly submitted independent claim 63, the prior art of Cayless (US 5,437,937) and Cayless et al. (US 5,013,381) were found, which both read on independent claim 31. Therefore, claim 31 is newly rejected as set forth below and this Office action is made non-final.

3. With respect to new claims 63-90, Applicant argues that because the Examiner stated that "the prior art does not teach or fairly suggest the use of a non-metallic coating comprising ... silanes [claim 47]" new claims 63-90 should also be allowable over the prior art of record. The Examiner notes that there are several differences between new claims 63-90 and claim 47 which was indicated as allowable, for example independent claim 63 does not require a silane in combination with an oxyanion, requires coating on any metal instead mild steel, and does not require that the non-metallic coating is applied directly to the metal surface, or that the thermoplastic layer is applied directly to the non-metallic coating layer. For these reasons, independent claim 63 is broadly interpreted and rejected over prior art as set forth below.

Specification

4. The disclosure is objected to because of the following informalities:

On page 5, third full paragraph (as amended), the chemical composition $CH_2CH_2CH_2Si(OCH_3)_3$ is objected to because it is not a stable chemical. If there is meant to be a single bond between the first C and second C, then the first C does not have enough bonds and there should be another H. If there is meant to be a double bond between the first C and second C, then the second C is bonded to too many H atoms. It appears that the chemical should be either vinylmethyltrimethoxysilane ($CH_2CHCH_2Si(OCH_3)_3$) or propyltrimethoxysilane ($CH_3CH_2CH_2Si(OCH_3)_3$).

Appropriate correction is required.

Claim Objections

5. Claim 59 is objected to because of the following informalities: Claim 59 recites "the thickness of the layer, or layers, of thermoplastic resin is/are", however independent claim 31 from which claim 59 depends, requires only a *single* layer of thermoplastic resin. Appropriate correction is required.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 62 and 65 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described

in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claims 62 and 65 claim the use of a silane having the formula $RCH_2CH_2CH_2Si(OCH_3)_3$, which appears to be new matter. The specification, as amended, discloses use of the silane $CH_2CH_2CH_2Si(OCH_3)_3$ (page 5) whereby there is not functional group R attached to the first C atom of the chemical. However, the Examiner notes, as discussed above, $CH_2CH_2CH_2Si(OCH_3)_3$ is not a stable chemical. (If there is meant to be a single bond between the first C and second C, then the first C does not have enough bonds. If there is meant to be a double bond between the first C and second C, then the second C is bonded to too many H atoms. It appears that the chemical should be either vinylmethyltrimethoxysilane ($CH_2CHCH_2Si(OCH_3)_3$) or propyltrimethoxysilane ($CH_3CH_2CH_2Si(OCH_3)_3$).)

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 62 and 65 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 62 is vague and indefinite because there is no antecedent basis for "X" in line 4 and therefore it is not clear what "X" refers to. If claim 62 should be dependent upon claim 48 to provide antecedent basis for "X", then the Examiner notes it is further unclear whether "R" in both claims are the same or different.

Claim 65 is vague and indefinite because it is not clear whether the "R" in claim 65 and in claim 64 (from which claim 65 depends) are the same or different. Because the specification does not teach the chemical $RCH_2CH_2CH_2Si(OCH_3)_3$, the specification does not provide clarification.

Examiner's Suggestion

9. The Examiner suggests in claim 31, lines 8-10, separating the different components of the non-metallic coating so that it can be determined which components are required in combination and/or in the alternative to one another (i.e., chromium, silicon, and an organic active species are required together, and in the alternative to yttrium, and not chromium, silicon and yttrium together).

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. Claims 31-32, 36-37, 42-43, 50-52, and 60 are rejected under 35 U.S.C. 102(b) as being anticipated by Cayless et al. (US 5,013,381).

With respect to claims 31-32, Cayless et al. discloses a process comprising the steps of: providing a cold rolled mild steel substrate; cleaning the substrate (col. 2, lines 22-27); applying a non-metallic coating layer directly to the cleaned substrate, whereby the treating composition

comprises yttrium nitrate (i.e., a coating comprising both yttrium and an oxyanion) (col. 2, lines 39-48); and applying directly to the chemically-treated strip a single layer of thermoplastic resin, for example acrylic resin (col. 3, lines 1-6). It is noted that the coating of Cayless et al. is carried out on the naturally-occurring oxide layer of the mild steel substrate; Applicant similarly coats on its naturally-occurring oxide layer as stated in the second full paragraph on page 5 of the specification.

As to claims 36-37, Cayless et al. teaches immersing the steel substrate in an yttrium nitrate solution in Example 1 in col. 4. As to claim 42, Cayless et al. discloses immersing its samples at room temperature which is less than 100 C. As to claim 43, Cayless et al. teaches that its yttrium nitrate solution is adhesion-promoting and anti-corrosive in col. 1.

As to claim 50, Cayless et al. does not teach having any chromium in its treating composition, therefore there is inherently less than 5 atomic % chromium.

As to claim 51, Cayless et al. teaches rinsing and drying the chemically-treated substrate prior to application of the thermoplastic resin in Example 1 in col. 4. As to claim 52, Cayless et al. teaches applying its treating solution to one side of the substrate.

12. Claims 63-64, 71-72, 77, 79-81, 84, and 90 are rejected under 35 U.S.C. 102(b) as being anticipated by Amort et al. (US 4,118,540).

With respect to claims 64 and 90, Amort et al. discloses a process comprising the steps of: providing a metal substrate; applying a non-metallic coating layer directly to the substrate, whereby the coating composition comprises a silane having a capped functional group; and applying directly to the chemically-treated strip a layer of thermoplastic resin, for example a

laminated polyester resin (col. 2, line 66 to col. 3, line 10). It is noted that in Example 3 of Amort et al., the copper substrate is first degreased, which is a cleaning step. As to claim 64, the exemplary silanes in col. 2, lines 41-58, meet the general formula of claim 64.

As to claims 71-72, Amort et al. teaches that the silane coating composition is preferably applied to a metal substrate by immersion (col. 3, lines 35-37). As to claim 77, Amort et al. teaches that its silane coating solution is adhesion-promoting and anti-corrosive in col. 1.

As to claim 79, Amort et al. does not teach having any chromium in its treating composition, therefore there is inherently less than 5 atomic % chromium.

As to claim 80, Amort et al. teaches drying the coated substrate in col. 3, lines 56-59. As to claim 81, Amort et al. teaches applying its treating solution to one side of the metal substrate in Example 3. As to claim 84, it is known that lamination uses conditions of elevated temperature and pressure.

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

14. Claims 33-34, 38-41, and 59 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cayless et al. (US 5,013,381).

As to claims 33-34, Cayless et al. does not disclose the gauge or thickness of its mild steel substrate. It is the Examiner's position that one skilled in the art would have been

motivated to select a thickness of the substrate depending upon the desired end use of the treated metal product.

As to claims 38-41, Cayless et al. teaches immersing its steel substrates in a vessel containing yttrium nitrate (Example 1). Cayless et al. teaches that the residence time ranges from 10 seconds to 10 minutes (col. 2, lines 60-63), and further explains why the residence time is a cause-effective variable at col. 2, lines 53-59. Overlapping ranges are *prima facie* evidence of obviousness. It would have been obvious to one having ordinary skill in the art to have selected the portion of Cayless et al.'s contact time range that corresponds to the claimed range. *In re Malagari*, 184 USPQ 549 (CCPA 1974). Further, it is well settled that determination of optimum values of cause effective variables such as these process parameters is within the skill of one practicing in the art. *In re Boesch*, 205 USPQ 215 (CCPA 1980).

As to claim 59, Cayless et al. does not teach that a particular thickness of the thermoplastic resin (such as acrylic resin) is required on the treated substrate. A skilled artisan performing adhesive bonding using the process of Cayless et al. would have minimized the amount of resin for economic reasons, however would have applied enough resin adhesive to create a strong bond between the parts being adhered together, particularly depending upon the strength required by the end use of the product.

15. Claims 31-34, 36-43, 50-55, 58-61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jones et al. (US 5,725,944) or Heyes (US 5,238,517), taken in view of Cayless et al. (US 5,013,381).

As to claims 31, 58, and 60-61, Jones et al. discloses a process for coating metal used in a process of manufacturing cans. Jones et al. teaches that the metal substrate may be blackplate (mild steel) at col. 2, lines 46-53. Jones et al. teaches that a coating comprising poly(ethylene-co-diethylene terephthalate) copolyesters, which are thermoplastic, is applied onto the blackplate substrate. Heyes discloses a process for coating metal used in a process of manufacturing can ends. Heyes teaches that the metal substrate may be blackplate (mild steel) at col. 2, line 41. Heyes teaches that a coating comprising PET, which is thermoplastic, is applied onto the second major surface of the metal substrate (film 32 in Figure 5 and laminates A, B, and D in Table 1), which is a single layer of thermoplastic material.

Cayless et al. discloses a process for increasing the adhesion between a metal substrate (which is preferably mild steel) comprising the steps of: providing a cold rolled mild steel substrate; cleaning the substrate (col. 2, lines 22-27); applying a non-metallic coating layer directly to the cleaned substrate, whereby the treating composition comprises yttrium nitrate (i.e., a coating comprising both yttrium and an oxyanion) (col. 2, lines 39-48); and applying directly to the chemically-treated strip a single layer of thermoplastic resin, for example acrylic resin (col. 3, lines 1-6). Cayless et al. states that its method of treating is used to improve the bond strength between a metal surface and a subsequently applied organic resin (col. 1). It is the Examiner's position that it would have been obvious for one having ordinary skill in the art, upon seeing the references of Jones et al. or Heyes in combination with Cayless et al., to have used the metal-treating process of Cayless et al. to pre-treat the mild steel/blackplate substrates in the methods of Jones et al. or Heyes prior to coating with the thermoplastic layer in order to increase the adhesion of the thermoplastic layer to the metal surface. The test of obviousness is not express

suggestion of the claimed invention in any or all references but rather what the references taken collectively would suggest to those of ordinary skill in the art presumed to be familiar with them. *In re Rosselet*, 347 F.2d 847, 146 USPQ 183 (CCPA 1965); *In re Hedges*, 783 F.2d 1038.

As to claims 36-43 and 50-51, Cayless et al. is applied for the reasons discussed in sections 11 and 14 above.

As to claims 33-34, Jones et al. teaches a metal gauge of 0.05 to 0.5 mm (col. 4, lines 29-30), and Heyes teaches a metal gauge of 0.05 to 0.4 mm (col. 2, lines 36-37).

As to claim 52, Jones et al. teaches that the thermoplastic resin is applied to one or both sides of the metal strip at col. 4, lines 3-4, and Heyes teaches that the PET resin is applied to one side of the metal strip in Table 1.

As to claims 53-55, Jones et al. teaches melting and rapidly quenching the thermoplastic resin at col. 4, lines 14-20 and extrusion coating at col. 3, line 66 to col. 4, line 14 which necessarily includes conditions of elevated temperature and pressure. Heyes teaches melting and rapidly quenching the thermoplastic resin which includes conditions of elevated temperature and pressure (col. 4, lines 9-27) and extrusion at col. 5.

As to claim 59, Jones et al. teaches that the thermoplastic coating has a thickness of 5 to 50 microns. Overlapping ranges are *prima facie* evidence of obviousness. It would have been obvious to one having ordinary skill in the art to have selected the portion of Jones et al.'s thickness range that corresponds to the claimed range. *In re Malagari*, 184 USPQ 549 (CCPA 1974). Heyes teaches that the PET coating has a thickness of 15 microns in Table 1.

16. Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cayless et al., or over Jones et al. or Heyes in view of Cayless et al., as applied to claim 31 above, and further in view of Baker et al. (US 3,775,151).

Cayless et al. lacks a teaching of cleaning its mild steel substrate prior to treatment by electrolytic cleaning; however, Cayless et al. teaches that the cleaning may be done by chemical or mechanical methods well known in the art (col. 2, lines 22-27). Baker et al. is cited to demonstrate that it is well known in the steel coating art to first clean a steel substrate by electrolytic cleaning. Baker et al. states at column 4, lines 26-36 and column 11, line 66 to column 12, line 6 that electrolytic cleaning is a process known in the prior art, particularly for low carbon (mild) steel strip. It would have been obvious to one having ordinary skill in the art to have cleaned the steel substrate of Cayless et al., or Jones et al. or Heyes in view of Cayless et al., electrolytically with the expectation of successful results since Cayless et al. is not limited as to the cleaning method that may be used, and Baker et al. teaches that electrolytic cleaning is well known in the art and is successful for mild steel substrates.

17. Claims 67-68, 73-76 are rejected under 35 U.S.C. 103(a) as being unpatentable over Amort et al. (US 4,118,540).

As to claims 67-68, Amort et al. does not disclose the gauge or thickness of its metal substrate. It is the Examiner's position that one skilled in the art would have been motivated to select a thickness of the substrate depending upon the desired end use of the treated metal product.

As to claims 73-76, Amort et al. teaches immersing its metallic substrate as a preferable means for applying the silane coating (col. 3, lines 35-37). Amort et al. is silent with respect to the length of time of immersion. It is the Examiner's position that a skilled artisan would have been motivated to minimize the immersion time for efficiency reasons, however one would have determined the amount of time necessary to provide a coating of sufficient thickness to effectively promote adhesion with the particular subsequently applied organic coating layer. It is well settled that determination of optimum values of cause effective variables such as these process parameters is within the skill of one practicing in the art. *In re Boesch*, 205 USPQ 215 (CCPA 1980).

As to claim 89, Amort et al. does not teach that a particular thickness of the thermoplastic resin (such as laminated polyester resin) is required on the treated substrate. It is the Examiner's position that it would have been obvious for a skilled artisan performing the laminating process of Amort et al. to have determined the desired thickness of the laminated thermoplastic polyester layer depending upon the desired end use of the product, while also minimizing the thickness layer for economic reasons.

18. Claims 63-64, 66-69, 71-77, 79-84, and 88-90 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jones et al. (US 5,725,944) or Heyes (US 5,238,517), taken in view of Amort et al. (US 4,118,540).

As to claims 63, 64, 88, and 90, Jones et al. discloses a process for coating metal used in a process of manufacturing cans. Jones et al. teaches that the metal substrate may be aluminum or blackplate (mild steel) at col. 2, lines 50-53. Jones et al. teaches that a coating comprising

poly(ethylene-co-diethylene terephthalate) copolyesters, which are thermoplastic, is applied onto the metal substrate. Heyes discloses a process for coating metal used in a process of manufacturing can ends. Heyes teaches that the metal substrate may be aluminum or blackplate (mild steel) at col. 2, lines 31-41. Heyes teaches that a coating comprising PET, which is thermoplastic, is applied onto the second major surface of the metal substrate (film 32 in Figure 5 and laminates A, B, and D in Table 1), which is a single layer of thermoplastic material.

Amort et al. discloses a process for increasing the adhesion between a metal substrate (which may be aluminum) comprising the steps of: providing a metal substrate; cleaning by degreasing the substrate; applying a non-metallic coating layer directly to the cleaned substrate, whereby the coating composition comprises a silane having capped functional groups, meeting the general formula of claim 64; and applying directly to the coated substrate a laminated layer of thermoplastic resin, for example polyester resin. Amort et al. states that its method of treating is used to improve the bond strength between a metal surface and a subsequently applied laminated organic resin coating (col. 1). It is the Examiner's position that it would have been obvious for one having ordinary skill in the art to have used the metal-treating process of Amort et al. to pre-treat the aluminum substrates in the methods of Jones et al. or Heyes prior to laminating with the thermoplastic polyester layer in order to increase the adhesion of the thermoplastic layer to the metal surface.

As to claims 71-77 and 79-80, Amort et al. is applied for the reasons discussed in section 17 above.

As to claims 67-68, Jones et al. teaches a metal gauge of 0.05 to 0.5 mm (col. 4, lines 29-30), and Heyes teaches a metal gauge of 0.05 to 0.4 mm (col. 2, lines 36-37).

As to claim 66, it is known to use cold-rolled aluminum as a substrate to prepare products in the packaging industry. As to claim 69, Jones et al. and Heyes teach using blackplate substrates. Amort et al. lacks a teaching of blackplate substrates, however the metallic substrates listed in Amort et al. are exemplary and not limiting as to the metallic substrates that may be used in its invention. It is the Examiner's position that one having ordinary skill in the art would have expected successful results using the method of Amort et al. on blackplate substrates since blackplate is a type of iron substrate and Amort et al. teaches use on iron substrates.

As to claim 81, Jones et al. teaches that the thermoplastic resin is applied to one or both sides of the metal strip at col. 4, lines 3-4, and Heyes teaches that the PET resin is applied to one side of the metal strip in Table 1.

As to claims 82-84, Jones et al. teaches melting and rapidly quenching the thermoplastic resin at col. 4, lines 14-20 and extrusion coating at col. 3, line 66 to col. 4, line 14 which necessarily includes conditions of elevated temperature and pressure. Heyes teaches melting and rapidly quenching the thermoplastic resin which includes conditions of elevated temperature and pressure (col. 4, lines 9-27) and extrusion at col. 5.

As to claim 89, Jones et al. teaches that the thermoplastic coating has a thickness of 5 to 50 microns. Overlapping ranges are *prima facie* evidence of obviousness. It would have been obvious to one having ordinary skill in the art to have selected the portion of Jones et al.'s thickness range that corresponds to the claimed range. *In re Malagari*, 184 USPQ 549 (CCPA 1974). Heyes teaches that the PET coating has a thickness of 15 microns in Table 1.

19. Claims 85-87 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heyes (US 5,238,517), taken in view of Amort et al. (US 4,118,540).

Heyes and Amort et al. are applied for the reasons discussed above in section 18. With respect to claim 85, it is noted that Heyes teaches that co-extruded film laminates may be used as the thermoplastic layer 4 in its invention (col. 5, lines 57-59). Such a preliminary co-extrusion step meets Applicant's limitation of coating a thermoplastic resin together with a bonding layer. As to claim 86, Heyes teaches that one or more layers may be formed of polyethylene terephthalate (PET) among other materials (col. 5, lines 51-57), which is a polyester.

Alternatively, as to claims 85-87, Heyes teaches applying a bond resin layer of maleic anhydride graft modified polypropylene random copolymer containing 0.2 +/- 0.05% maleic anhydride in combination with a polypropylene thermoplastic layer (Table 1). Heyes teaches that the thickness of the bond resin layer is 3 microns.

20. Claim 70 is rejected under 35 U.S.C. 103(a) as being unpatentable over Amort et al., or over Jones et al. or Heyes in view of Amort et al., as applied to claim 63 above, and further in view of Baker et al. (US 3,775,151).

Amort et al. lacks a teaching of cleaning its metallic substrate prior to treatment by electrolytic cleaning. Baker et al. is cited to demonstrate that it is well known to clean a ferrous substrate by electrolytic cleaning prior to coating. Baker et al. states at column 4, lines 26-36 and column 11, line 66 to column 12, line 6 that electrolytic cleaning is a process known in the prior art, particularly for low carbon (mild) steel strip. It would have been obvious to one having ordinary skill in the art to have cleaned the ferrous substrate of Amort et al., or the blackplate

substrate of Jones et al. or Heyes in view of Amort et al., electrolytically with the expectation of successful results since electrolytic cleaning is well known in the art and is successful for ferrous/mild steel substrates.

Allowable Subject Matter

21. Claim 48 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claim 48 is allowable because there is not motivation in the prior art of Cayless et al. (discussed above) to add a silane having the claimed formula to its treating composition. It is noted that claim 48 has been interpreted as positively requiring a silane of the claimed formula no matter the other ingredients in the non-metallic coating; claim 48 has not been interpreted as only further limiting the silane which is optional in independent claim 31.

22. Claims 44 and 49 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claim 44 is allowable because there is not motivation in the prior art of Cayless et al. (discussed above) to add a phosphate, chromate, oxalate, or arsenate oxyanion in its treating composition. While Cayless et al. is not limited to the use of nitrate as the counter anion, the prior art does not teach or suggest the use of compounds of yttrium or a lanthanum metal in combination with a phosphate, chromate, oxalate, or arsenate anion used for increasing adhesion between a metal and an organic resin. Claim 48 is allowable because there is not motivation in the prior art of Cayless et al. (discussed above) to add either zinc orthophosphate, manganese phosphate, or iron phosphate to its treating composition.

23. Claim 78 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claim 78 is allowable because there is not motivation in the prior art of Amort et al. (discussed above) to add an oxyanion, including phosphate, chromate, oxalate, or arsenate oxyanion in its treating composition.

Conclusion

24. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Cayless (US 5,437,937) is cited for its teaching of a coating composition comprising yttrium nitrate on a mild steel substrate, and having an organic coating layer comprising a silane thereon.

Van Ooij et al. (US 5,759,629), Norling et al. (US 4,364,731), and Origer et al. (US 3,508,983) are each cited for their teachings of a non-metallic coating comprising a silane applied over a metal substrate, and coated thereon by a thermplastic coating layer.

25. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kirsten Jolley whose telephone number is 703-306-5461. The examiner can normally be reached on Monday to Thursday and every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive Beck can be reached on 703-308-2333. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1193.

Kirsten C. Jolley
Patent Examiner
Technology Center 1700

kcj